10/92

I.1

WORK PLAN

FOR A

FIELD INVESTIGATION

AT

THE SELMER COMPANY
500 INDUSTRIAL PARKWAY
ELKHART, INDIANA

Prepared for

NORTH AMERICAN PHILIPS CORPORATION
THE SELMER COMPANY
AND
MACMILLAN, INC.

Prepared by

WW ENGINEERING & SCIENCE
5555 GLENWOOD HILLS PARKWAY
GRAND RAPIDS, MICHIGAN 49588-0874

OCTOBER 1992

PROJECT 22334

WW Engineering & Science

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Prepared by:	Reviewed by:
Lauryl A. Lefebvre	Scott T. Dennis
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Project Hydrogeologist	**Director, Environmental Investigations**

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1.0 INTRODUCTION

WW Engineering & Science (WWES) has been jointly retained by North American Philips Corporation, The Selmer Company, and Macmillan, Inc. to prepare and implement an investigation work plan for The Selmer Company Site, hereafter referred to as the "Site", as defined in the Consent Decree in U.S. vs. Selmer Company et. al. (Civil Action No. S89-00348). The Site includes the Selmer Company facility, hereinafter referred to as the "facility", located at 500 Industrial Parkway in the Eastside Industrial Park in Elkhart, Indiana (see Figure 1). The facility was built in 1965 and has been used exclusively for the manufacturing of brass musical instruments. Solvents are used during the manufacturing process to degrease and clean metal parts between plating operations. The purpose of the investigation is a) to determine the identity, amounts and location of hazardous substances, pollutants or contaminants in the environment at the Site, and b) to evaluate alternatives for any appropriate remedial action to prevent, mitigate or otherwise remedy any release or threatened release of any hazardous substances, pollutants or contaminants into the environment at the Site. Governmental and private-party technical investigations have reported detectable VOCs in the ground water in eastern Elkhart since 1976.

1.1 GENERAL GEOLOGY AND HYDROGEOLOGY

The Site is located within the St. Joseph River basin between the St. Joseph River and the Elkhart River, a tributary of the St. Joseph River (see Figure 1). The St. Joseph River and the Elkhart River flows to the west and northwest, respectively. The physiography of the region ranges from flat plains to rolling and hilly terrain. The Site is relatively flat with the exception of two topographic depressions which are located east and south of the facility.

1.1.1 GEOLOGY

Geology of the area consists of approximately 120 feet of sand and gravel outwash deposits interbedded with a confining silt and clay unit overlying bedrock (Imbrigiotta and Martin, 1981). The thick deposit of stratified and unstratified drift was deposited in the Pleistocene Epoch during four glacial advances and retreats (Imbrigiotta and Martin, 1981). According to Johnson and Keller (1972) and Schneider and Keller (1970), the bedrock consists of the Coldwater Shale of Mississippian age and the Sunbury and the Ellsworth Shales of Devonian and Mississippian age.

Based on soil borings drilled to a maximum depth of 59 feet, the Site geology appears to consist of 26 to 52 feet of medium to course sand or sand and gravel overlying gray silty clay. A dark brown loamy sand was observed 1 to 3 feet below ground surface for the majority of the property except in the vicinity of the small shed located east of the manufacturing building. In this area, a sand fill of varying thickness of 3.5 to 12 feet was observed.

1.1.2 HYDROGEOLOGY

According to Imbrigiotta and Martin (1981), the confining layer of silt and clay within the sand and gravel outwash deposit is 60 feet thick in the western half of the industrial park. The outwash deposit overlying the silt and clay confining layer is of average thickness 40 feet, is areally extensive, and locally exists as an unconfined aquifer. The outwash deposit between the confining silt and clay layer and bedrock is approximately 20 feet thick and exists under confined conditions.

The regional ground water flow is generally horizontal and towards the river systems. Vertical components of flow are minimal, except in areas near the major streams, where upward gradients exist. This flow pattern is characteristic of a well-connected stream-aquifer system with a gaining stream. Ground water flow at the facility most likely flows to the west or northwest. Ground water was encountered at depths ranging from 1 foot to 14 feet during drilling of soil borings at the facility in 1989.

The U.S.G.S. study of the region as described in Section 1.4.2 noted an annual fluctuation of 2 to 4 feet in the water table (Imbrigiotta and Martin, 1981). The fluctuation was attributed to variation in recharge to the aquifer.

1.2 DESCRIPTION OF INDUSTRIAL PARK

Eastern Elkhart includes a 500-acre industrial park, the Eastside Industrial Park, which is bounded on the north by Conrail tracks, on the west by Riverview Avenue and Outer Drive, on the south by U.S. 20, and on the east by Middletown Run Road (see Figure 2). The Selmer facility is located in the northwest quadrant of the industrial park.

1.3 DESCRIPTION OF FACILITY

The facility consists of 18.45 acres of lightly wooded land and is located in the W1/2 of SE1/4 of Section 3 of T37N, R5E of the Elkhart Quadrangle. The main manufacturing building and associated storage buildings are located in the northern half of the property (see Figure 3). An office building with a parking lot is located at the south end of the facility. Asphalt pavement for parking also exists along the western portion of the facility.

Surface water runoff drains to topographic depressions located east of the manufacturing building and west of the office building, which are wooded and periodically contain standing water.

The facility, currently operating under the name "Vincent Bach Company", was constructed in 1965. The facility was operated from 1965 to 1970 by C.G. Conn, Ltd. The property was transferred in June 1990 to The Selmer Company. On December 29, 1988, The Selmer Company was sold to Integrated Resources Inc., the current owner.

Several additions have been added to the manufacturing facility since its construction in 1965. In 1971, the building was expanded approximately 59,000 square feet and 12,000 square feet to the north and east of the original building, respectively. In 1972, a southern extension of approximately 15,000 square feet was added to the original facility.

The facility has been used exclusively for the manufacture of brass musical instruments. Solvents are used during the manufacture of band instruments to degrease and clean brass components prior to finishing with lacquer and to clean the parts in assembly operations. Trichloroethylene (TCE) is a solvent used during the manufacturing process.

Degreasing operations have occurred chiefly in vapor phase degreasers (VPDs) which were connected to solvent distillation units by 1967 to reclaim the used solvent for reuse. The solvent distillation units on the VPDs generated sludge, commonly referred to as "still bottoms", which must be removed periodically. The still bottoms consisted chiefly of animal fats, buffing compounds, and a small percentage by weight of solvents (TCE).

1.4 PREVIOUS STUDIES OF EASTERN ELKHART AREA

Laboratory analyses of ground water samples obtained throughout the eastern Elkhart area have documented the occurrence of several VOCs, including TCE, TCA, and dichloromethane (methylene chloride). TCE, which is commonly used as a degreaser by many industries, is the principal VOC detected in the area.

VOCS were first detected in ground water by the U.S. EPA in 1976. Four shallow residential wells located between the St. Joseph River and the industrial park were sampled following reports from residents of taste and odor problems in the drinking water. Eight VOCS were detected in the residential wells including methylene chloride, 1,1-dichloroethane (DCA), and TCA. The lateral extent of impact on the local ground water system was not determined.

In 1979, the U.S. Geological Survey (USGS) conducted a hydrologic and chemical evaluation of the ground water resources of northwest Elkhart County (Imbrigiotta and Martin, 1981). One of the objectives of the study was to characterize the ground water flow regime and the ground water quality of the area. The scope of work included organic laboratory analyses of ground water samples collected from 19 monitoring wells located within the industrial park and the residential area north of the park. The 19 monitoring wells were screened at depths of 45 feet or less. One of the 19 wells sampled was located at the northwest corner of the facility. No VOCS were detected in the ground water samples collected from this well.

VOCS were detected in ground water samples collected from 8 of the 19 wells monitoring wells. Of these eight wells five were located within the residential area east of Superior Road, and three wells were located within the northeast corner of the industrial park.

The VOCs detected included TCE, TCA, methylene chloride, trichlorofluoromethane, trichloromethane (chloroform), DCA, methylbenzene (toluene), and 1,2-dichloropropane. However, only three compounds (TCE, TCA, and methylene chloride) were detected within the Eastside Industrial Park. Notably, the highest average concentration of all organic compounds were observed in wells located in the residential area north of the Conrail tracks and northeast of the Site. A source(s) of the VOCs could not be identified and a plume(s) could not be delineated based on the results of the USGS study.

In 1985 Weston Consultants, Inc. (WESTON-SPER, 1986), under contract to the U.S. EPA, conducted extensive ground water sampling of the private residential and industrial wells in the eastern Elkhart area. Within the industrial park and the residential area to the north, 142 water wells were analyzed for VOCs. TCE was the predominant compound detected in the wells. The Weston study confirmed the presence of VOCs in the ground water in eastern Elkhart area, however, no sources for the VOCs were identified.

2.0 PURPOSE AND SCOPE OF WORK

The primary purpose of the proposed investigation is to characterize the soil **and ground water** conditions at the Site to determine the presence or absence of an area(s) of contamination that may have resulted from the alleged disposal of TCE. The objectives of the investigation are as follows:

- to better define the soil stratigraphy of the Site;
- to evaluate the occurrence and relative magnitude of VOCs that may be present in soil vapor in the unsaturated zone;
- to quantify the VOCs in the soil and ground water by laboratory analyses;
- to delineate the impact of VOCs, if any, to soil at the Site; and [redacted]
- to confirm the presence or absence of possible source areas at the Site.

In order to meet these objectives, the investigation is proposed to be conducted in two phases. The initial phase will involve the implementation of a soil gas survey to identify potential source areas at the Site. The scope of work for the Phase I will include PETREX© passive sampling techniques offered by the Northeast Research Institute (NERI) of Farmington, Connecticut.

The second phase will involve the implementation of a drilling and soil/ground water sampling program. The Phase II work scope will include the (1) drilling of a minimum of five soil borings, (2) collection of soil and ground water samples during drilling for chemical testing, (3) laboratory analysis of selected soil samples and all ground water samples for VOCs, and (4) interpretation of the analytical results. [redacted]

[redacted] or ground water do not exceed [redacted] the results of the Phase II work indicate that applicable remedial standards for soil or ground water have been exceeded, additional work will be proposed to delineate the area of concern.

3.0 PHASE I - SOIL GAS SURVEY

An assessment of the chemical characteristics of the soil vapor at the Site is proposed for the first phase of the investigation. The purpose of the Phase I work is to determine the presence or absence of VOCs in the subsurface which may have resulted from the alleged improper disposal of solvents historically. The scope of work will include the implementation of a soil gas survey at the Site. The use of soil gas technology provides the most effective means for identification of potential source areas at the Site.

3.1 INTRODUCTION

The following two sections describe the PETREX© technology and the personnel that will be used to implement the PETREX techniques for the proposed Phase I work.

3.1.1 PETREX TECHNOLOGY

A soil gas survey will be conducted using the high resolution soil gas technique known as the PETREX© Technology. The PETREX© method takes advantage of the recent advances in sorbent technology, collection device design, mass spectrometry, and computerized pattern recognition techniques (Einhorn, I. N. and others, 1991). The collection device design uses passive sampling techniques in which samples are collected from undisturbed soils. Passive soil gas sampling allows an equilibrium to develop between the soil gases and the sorbent, a charcoal device.

The charcoal adsorbent is adhered to two ferromagnetic wires within a glass tube. One wire is used for mass spectrometer (MS) analysis, the other wire is reserved for gas chromatograph/mass spectometer (GC/MS) analysis, if needed. The passive charcoal devices are buried in shallow soil for a number of days and retrieved for analysis by desorption into the ion source of a MS via Curie-point thermal desorption. Refer to Appendix A for a more detailed account of the protocol followed for PETREX© soil gas surveys.

3.1.2 PERSONNEL

The field and office work conducted by WWES personnel will be initiated from the Grand Rapids, Michigan office. WWES' Project Manager, Scott Dennis, and Project Hydrogeologist, Lauryl Lefebvre, will assist in the coordination and implementation of the field and report writing activities associated with the project.

All field work will be conducted by properly trained personnel in accordance with Occupational Safety and Health Administration (OSHA) guidance and will be implemented in accordance with the Health & Safety Plan presented in Appendix B.

Prior to the installation of the gas samplers, the soil gas sample locations will be established by WWES' certified survey personnel. The PETREX© passive collectors will be installed, activated and removed at the Site by WWES field personnel trained in PETREX© soil gas procedures. Duplicate samplers and trip blanks will also be collected by WWES field personnel as part of the quality assurance/quality control (QA/QC) plan for the project.

Analytical testing of the collectors will be conducted by NERI's Farmington, Connecticut or Lakewood, Colorado laboratory. A summary and assessment of the analytical results will be provided by NERI's Connecticut office. This information will be included in WWES' Investigation Report.

3.2 FIELD METHODS

This section summarizes the field methodology to be implemented during the Phase I investigation. For a more detailed description of field and laboratory protocol, refer to the PETREX© soil gas survey standard operating procedures (SOP's) presented in Appendix A.

3.2.1 SURVEY

The surveyors will establish a grid based on arbitrary local grid coordinates (assumed). The grid will include established and monumented control lines within an approximate 400- by 250-foot grid area (see Figure 4). A wood stake will be set at 50-foot grid intervals to locate all soil gas sampler locations.

The surveyors will locate all soil gas points relative to the grid. All locations of the soil gas samplers will be recorded with a 1.0-foot accuracy. A map has been created based on a composite map (aerial photo of Spring 1986 plus plat map) of the S1/2, SE1/4, Section 3, T37N, R5E of Concord Township (see Figure 3). The sampler locations will be plotted with respect to this map.

In addition, several benchmarks will be established by the WWES' surveyors at the third order accuracy based on the National Geodetic Vertical Datum (NGVD) of 1929. The benchmarks will be used to establish ground surface elevations for all soil gas sampler locations. All elevations will be recorded to the nearest one-tenth of a foot.

3.2.2 INSTALLATION OF SAMPLERS

A total of 71 PETREX© soil gas samplers, provided by NERI, will be placed in uniform arrays (see Figures 3 and 4). A grid with a spacing of 50 feet will surveyed within an approximate 400-foot by 250-foot area east of the manufacturing facility. Within the 50-foot grid, a more closely spaced 25-foot grid pattern will be surveyed in the area immediately east of the manufacturing plant. The sample locations will be labeled with the prefix "SG" as indicated in Figure 4. Sample locations may be deleted or altered depending on the presence of surface water within the lowlands east of the manufacturing facility. If the proposed sample location is covered by surface water such that the water prevents access, or would not allow for useful soil gas data, the location will be moved to the perimeter of the standing water. If this adjustment in location results in locating the sampler within 25 feet of another proposed sample location, the sample location will be deleted.

The passive collectors will be activated in the field by removing the cap and seal and placing them in an inverted position into cored holes at a depth of 17 inches. The boreholes will be drilled with a hammer drill using a 1.5-inch by 18-inch bit to accommodate the 1-inch outer diameter (OD) sampler. The boreholes will be backfilled with native soil cuttings, and flagged for easy location. At each sample location, field notes will be recorded regarding sample location, type of sampler installed (regular or duplicate), date and time of installation, soil profile, type of backfill, moisture conditions, type of flagging, and staining of soil. [redacted]

For the samplers located within areas of asphalt pavement or concrete, the boreholes may be backfilled with crushed aluminum foil to one inch below grade. The remaining one inch will be backfilled with quick-setting cement. Additional attention will be given to flagging the stations within the areas of dense vegetation to ensure sample retrieval.

3.2.3 REMOVAL OF SAMPLERS

All soil gas samplers will be installed within a 24 to 72 hour time period and will be retrieved after a maximum 28-day residence period. During the residence period, the samplers will equilibrate with the soil vapors of the undisturbed medium. Upon retrieval, the gas samplers will be shipped to NERI's Lakewood, Colorado laboratory for MS analysis. If GC/MS analysis is required for separating coelution species of a complex mixture of pollutants, the sampler will be forwarded to NERI's Farmington, Connecticut laboratory.

At the time of installation, two time calibration samplers in addition to a regular sampler will be installed at two sample locations at the Site. One set of time calibration samplers, TC-1, will be installed near the shed east of the plant. A second set of the time calibration samplers, TC-2, will be installed at a location just north of the low wooded area. One time calibration sampler from each set will be retrieved three days from the time of installation. The remaining time calibration sampler at sample locations TC-1 and TC-2 will be retrieved seven days from the time of installation.

The purpose of the time calibration samplers is to assess the loading rate of VOCs onto the PETREX© collector wires. The results obtained from the time calibration samplers may reduce the total residence time for the survey gas samplers.

3.3 LABORATORY TESTING

Upon retrieval of the soil vapor survey samplers from the field, the samplers will be returned to the laboratory for a full VOC scan. The analyses will be performed by Curie-point desorption directly into the ion source of an interfaced quadrupole MS. During each sample analysis, the desorbed VOCs will normally be analyzed in the mass range of 30 to 240 amu. The information obtained during the analysis process will be stored in the computer as a composite of the VOCs collected at each sample location. The data will be downloaded onto a graphics workstation where the information will be processed using a variety of chemometric techniques.

Identification and relative response of the volatile organic compounds present with the gas sampler will be reported by the analytical laboratory. Compound identification will be based on molecular weight, compound fragmentation, and isotope distribution, as applicable. Relative response reported for each compound is based the observed ion count during sample analysis (Einhorn, N. and others, 1991).

3.4 QA/QC PROGRAM

The QA/QC plan for the Phase I is based on WWES' standard field protocol and on the recommendations of NERI. The plan includes collecting duplicate samples and trip blanks during field activities and running method blanks during laboratory analyses. No equipment blank samples will be collected since the soil gas samplers are dedicated to each sampling location. Additionally, reagent blanks will not be run during analytical testing since no reagents are required to perform the analysis.

3.4.1 FIELD LOGBOOKS/DOCUMENTATION

Logbooks will used to record all data collection activities performed in the field. Entries in the field logbooks will be described in as much detail as possible so that persons returning to the Site may re-construct a particular situation without reliance upon memory. Each entry will be associated with a project-specific document number. All entries will be made in ink and no erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark, initialed and dated.

The title page of each logbook will contain the following:

- person to whom the logbook is assigned;
- logbook number;
- project name; and
- project start and end dates.

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, names of all field team members present, level of personal protection being used, and the signature of the person making the entry will be entered. The names of visitors, field sampling, or investigation team personnel and the purpose of their visit will also be recorded in the field logbook. A guideline for taking field notes and records is included in Appendix C.

Although the field activities are proposed to be performed in accordance with the procedures documented in this work plan and in the PETREX© soil gas survey SOP. presented in Appendix A, the field logbook will note any necessary deviations. The field logbook will be used to record the date and time of installation and retrieval of each soil gas sampler, sampler number, sampler location description, soil type, and general observations. Soil gas samplers also serving as duplicate samplers will be noted in the logbook, in the sample identification, and in the chain-of-custody form.

3.4.2 DUPLICATES

A total of seven soil gas samplers installed during the survey will be duplicate samplers (one duplicate sample for every 10 samples collected). The duplicate samplers contain three element wires, unlike the regular samplers which contain two element wires. The sample identification "SG-#" will be followed "(duplicate)" to indicate that a duplicate sampler was used at the sample location. The duplicate sampler locations are shown on Figure 4.

The duplicate samplers will be collected for two reasons. First, the duplicate sample will provide the mass spectrometer operator with some measure as to the relative levels of compounds on the collectors. With this information, the operator may then set the instrument to optimum performance levels. This will be accomplished by analyzing the duplicate sample prior to the survey sample. Based on the results, the operator may slightly increase or decrease the sensitivity of the mass spectrometer. Secondly, the duplicate samples will show that the instrument is detecting the same compounds from the wires of both samples, although the level of intensity may vary.

The duplicate samples will be analyzed with identical machine parameters and compared with respect to compound identification of the original samples.

3.4.3 Travel Blanks

Two PETREX© soil gas samplers will be included in this survey as travel blanks (two travel blanks for every shipment). The travel blanks will be labeled with the prefix "TB". The purpose of the travel blanks is to demonstrate that contamination was not introduce during transport of the survey samplers. The travel blank samplers will be sealed throughout the survey and will travel with the survey samplers.

The travel blanks will be analyzed with identical machine parameters and compared to the results of the survey samplers.

3.4.4 Soil Gas Sampler and Shipment

The sample packaging and shipment procedures summarized below will insure that the samples will arrive at the laboratory with the chain-of-custody intact. Examples of chain-of-custody forms and other field and sampling activity forms are located in Appendix D.

- WWES field personnel are responsible for the care and custody of the soil gas samplers until the samplers are transferred or properly dispatched. As few people as possible should handle the samplers.

- All soil gas samplers will be tagged with sample numbers and locations.

- Sample tags are to be completed for each sampler using waterproof ink unless prohibited by weather conditions.

- Once all soil gas samplers have been retrieved, they will be sealed in Ziplock bags, wrapped in bubble packing material, and packed tightly in a box for shipment.

- Samplers will be shipped by overnight courier service to NERI's analytical laboratory in Lakewood, Colorado. The shipment will be accompanied by a properly completed chain-of-custody record identifying the contents.

- If the soil gas samples are sent by common carrier, a bill of lading shall be used. Receipts of bills of lading will be retained as part of the permanent documentation. If sent by mail, the package will be registered with return receipt requested. Commercial carriers are not required to sign off on the custody form as long as the custody forms are sealed inside the sampler container.

- When transferring the possession of samplers, the individuals relinquishing and receiving the samplers will sign, date, and note the time on the record. This record documents transfer of custody of samplers from the field technician to another person, to the NERI laboratory, or to/from a secure storage area. The original record will accompany the shipment, and a copy will be retained by the field personnel and returned to the WWES project manager.

3.4.5 LABORATORY TESTING

Quality assurance by NERI will be maintained by tuning the mass spectrometer with the internal standard perfluorotributylamine to obtain correct mass assignment and peak resolution. Periodic machine background analyses (approximately every 20 samples) will be performed to assure that there is no carry-over between successive samples. In addition, the mass spectrometer control program contains appropriate "flag statements" that prompt the operator with a warning if an input sample number has already been analyzed. The operator then checks the current number, along with the disk storage location of the previously entered number to identify the true numbering situation.

3.5 REPORT

A technical memorandum summarizing the results of soil gas survey will be prepared by WWES and issued to the U.S. EPA at the conclusion of all field and laboratory activities of the Phase I work. Recommendations regarding any necessary adjustment of the Phase II work scope will also be presented.

4.0 PHASE II - DRILLING AND SAMPLING PROGRAM

The soil and ground water conditions at the Site will be evaluated during a Phase II investigation. The second phase would include the implementation of a drilling and sampling program. The purpose of the drilling and sampling program is to assess the potential impact of VOCs to the soil and ground water at the Site and to determine the potential source(s) of the impacts. The objectives of the Phase II investigation are to:

- characterize the soil stratigraphy;
- quantify VOCs which may be present in the soil and ground water; and
- evaluate the distribution of the VOCs.

The scope of the proposed Phase II work will include:

- drilling of soil borings;
- collection of soil samples during drilling;
- installation of temporary wells in the soil borings;
- collection of ground water samples during drilling;
- preparation of well/boring log sheets;
- laboratory analysis of soil and ground water samples for U.S. EPA Method 8021;
- preparation of maps and cross-sections;
- preparation of isochemical contour maps, if appropriate; and
- identification of the absence or presence of potential source area(s).

[redacted]

The scope of work for the Phase II investigation including laboratory testing will be implemented by WWES' personnel in Grand Rapids, Michigan. Soil and ground water samples will be analyzed by WWES' Environmental Laboratory in Grand Rapids, Michigan.

4.1 FIELD METHODS

The following is a summary of the field methodology to be implemented during the Phase II investigation. For a more detailed description of Environmental Laboratory Division protocol, refer to WWES's SOP's in Appendix C. The field work will be implemented in accordance to the Health & Safety Plan presented in Appendix B.

4.1.1 SOIL BORINGS

If no anomalies indicative of potential source areas are observed during Phase I, five soil borings will be drilled using 4.25-inch inner diameter (ID) hollow-stem augers and an all-terrain vehicle (ATV) drill rig. The approximate locations of these soil borings are presented in Figure 5. The exact location of the soil boring within each area indicated in Figure 5 will be based on site accessibility. The soil boring locations were determined by Scott Dennis (WWES) and Ken Theisen (U.S. EPA) on October 6, 1992 during a visit to the site.

If anomalies indicative of potential source areas are observed during Phase I, appropriate soil boring locations will be presented in the Phase I technical memorandum. The drilling and sampling methodologies and depths will be similar to those described below.

The soil borings will be drilled to a depth of 5 feet below the ground water table. The soil boring locations will be labeled with the prefix "SB". Soil samples will be collected using a 1.5-inch ID split-spoon sampling device, 2 feet in length. The split-spoon sampling device will be driven into undisturbed sediments ahead of the lead auger. Soil samples will be collected in 2-foot intervals continuously in accordance with ASTM Method D-1586. Upon completion of the soil borings, the boreholes will be backfilled with natural soil cuttings. Decontamination of the hollow stem augers and split-spoon sampling device is discussed in Section 4.3.2.

4.1.2 SOIL SAMPLING

Two sets of soil samples will be collected from each sample interval. One set will be collected for chemical testing. This set of soil samples will be labeled with the soil boring identification followed by sample depth in parenthesis. The samples will be placed in an iced cooler chest for transport to the laboratory. The remaining amount of soil will be placed in a mason jar for field screening and visual inspection. A third set of soil samples will be collected as a duplicate set for laboratory analyses once every ten sample intervals. This sample set will be labeled with the soil boring identification and the sample depth in parenthesis followed by the notation "Duplicate". One equipment rinse blank for every ten samples will also be submitted for laboratory testing (see Section 4.3.3). The "split-spoon rinse blank" label will contain the identification of the soil sample collected after decontamination of the split-spoon and collection of the rinse water. Table 1 presents the required containers, preservation techniques, and holding times for the soil (non-aqueous) samples collected for laboratory analysis.

4.1.3 FIELD SCREENING

Field screening of soil samples will be performed using a photoionization detector (PID) using a 11.7 eV lamp. The PID measures the total amount of volatile organics in the headspace of a sample in parts per million (ppm) with of precision of 0.1 ppm. The method of measuring the headspace of a soil sample is described in detail in Appendix C.

The field screening results will be recorded on well/boring log sheets along with a lithologic description of the sample and the number of blow counts required to advance the split-spoon sampler.

4.1.4 GROUND WATER SAMPLING

Ground water samples will be collected from temporary wells installed during drilling of each of the five soil borings. Temporary wells will be constructed consisting of 2-inch ID galvanized steel riser pipe and a 5-foot long stainless steel well screen. The well materials will be placed within the bore hole once the augers have been advanced to a depth 5 feet below the water table. The augers will then be retracted to expose the well screen to the natural formation.

The temporary wells will be developed using a pump or Teflon bailer until the discharge water is observed to be relatively free of suspended fines. Following well development, ground water samples will be collected for laboratory testing using steam-cleaned Teflon bailer and polypropylene rope. One duplicate ground water sample and equipment rinse blank will be collected from one of the five wells.

The ground water samples will be labeled with the prefix "TW-" and the soil boring number followed in parenthesis by the well screen depth interval. The notation "Duplicate" will be added to the sample identification for the duplicate ground water sample. The "bailer rinse blank" label will include the temporary monitoring well number which was sampled after decontamination of the Teflon bailer and collection of the rinse water. Table 1 presents the required containers, preservation techniques, and holding times for the ground water (aqueous) samples collected for laboratory analysis.

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Exemption 5,
5 U.S.C. §552(b)(5)
Deliberative Process

4.1.5 SURVEY

The location of the soil borings will be referenced with respect to the grid established during the Phase I investigation. The soil boring locations will be recorded to the 1.0-foot accuracy and will be plotted on the map created for the Site.

The ground elevation at the soil boring locations will be recorded to the 0.10-foot accuracy and referenced to the Site benchmarks established during the Phase I investigation.

4.2 LABORATORY TESTING

The following is a summary of the laboratory methodology to be implemented during the Phase II investigation. For a more detailed description of laboratory protocol, refer to Appendix E.

The scope of analytical testing during the Phase II investigation includes laboratory analysis of soil and ground water samples, including duplicate samples, equipment rinse blanks and trip blanks. The number and identification of the soil samples submitted for chemical testing will be based on the Phase I results, the Phase II field screening results, and the location, depth, and soil type of individual samples. All ground water samples collected during the Phase II site investigation will be analyzed.

The soil and ground water samples, duplicate samples, equipment rinse blanks, and trip blanks, will be analyzed for purgeable and halogenated VOCs by gas chromatography (GC) using U.S. EPA Method No. 8021. A compound list and associated detection limits for Method No. 8021 for non-aqueous and aqueous matrices is presented in Tables 2 and 3, respectively. A list of required sample volumes, containers, preservation methods, and holding times for aqueous and nonaqueous matrices is included in Table 1.

4.3 QA/QC PROGRAM

The QA/QC plan for the Phase II is based on WWES' standard laboratory protocol. The plan includes: 1) detailed field documentation; 2) decontamination of field equipment and proper sample handling; 3) laboratory analyses of equipment rinse blanks and trip blanks; 4) proper sample handling and shipment; 5) stringent laboratory QA/QC procedures; and 6) the collection and laboratory analyses of duplicate samples.

4.3.1 FIELD DOCUMENTATION

To facilitate accurate field records, various forms will be utilized by WWES field personnel to document routine procedures. Among these procedures, forms will be utilized for well/boring logs, sample identification tags, and chain of custody. Examples of these forms are included in Appendix D.

Logbooks will be used to record the data collection activities performed in the field. Entries in the field logbook will be described in as much detail as possible so that persons returning to the Site may reconstruct a particular situation without reliance upon memory. A guideline for taking field notes and records is presented in Appendix C.

Each entry in the logbook will be associated with a project-specific document number. All entries will be made in ink and no erasures will be made. If an incorrect entry is made, the information will be crossed out with a single strike mark, initialed and dated.

The title page of each logbook will contain the following:

- person to whom the logbook is assigned;
- logbook number;
- project name;
- project start and end dates.

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather, names of all sampling team members present, level of personal protection being used, and the signature of the person making the entry will be entered. The names of visitors, field sampling, or investigation team personnel and the purpose of their visit will also be recorded in the field logbook.

Whenever a sample is collected, or a measurement is made, a detailed description of the location of the station shall be recorded. The equipment used to collect samples will be listed, along with the time of sampling and the volume and number of containers collected for each sample interval. A sample identification number will be assigned prior to sample collection. The number of photographs taken of the station, if any, will be listed. All equipment used to make measurements will also be identified, along with the date of calibration. Any deviations to the proposed field activities will also be noted in the logbook. A guideline for taking field notes and records is in Appendix C.

4.3.2 DECONTAMINATION OF FIELD EQUIPMENT AND SAMPLE HANDLING

All field equipment used during sample collection will be decontaminated prior to each use to reduce the likelihood of cross-contamination of soil and **ground water** samples. The drilling equipment will be steam cleaned or detergent scrubbed with a non-phosphate soap and rinsed with deionized water prior to use at each soil boring location. The soil sampling equipment (split-spoon sampler and stainless-steel spatula) and ground water sampling equipment (well materials and Teflon bailer) will be steam-cleaned or washed with a non-phosphate soap and rinsed with deionized water prior to each sample interval.

Quality control provisions for soil and ground water sampling are as follows:

- Only "undisturbed" portions of the split-spoon core will be collected for **soil** sampling.
- The procedure for split-spoon sampling will consist of the method described in ASTM D 1586 found in Appendix C.
- Soil samples for volatile organic analyses will be collected as rapidly as is practical after the split-spoon sampler is opened. The sample will be placed directly into the sample vials with a stainless steel spatula.
- Soil samples will be collected in a jar for field screening with a PID or FID. These soil samples will be screened according to the technique described in the SOP entitled *Jar Headspace Measurements in Unsaturated Soil Samples* (Appendix C).
- Soil identification procedures will conform to WWES' standard soil classification found in Appendix C.
- Temporary well materials will be steam-cleaned prior to installation at each soil boring location.
- Ground water samples will be collected with a clean Teflon bailer and new polypropylene rope at each temporary well location.
- The ground water samples will be collected with no headspace to minimize the loss of volatile organic hydrocarbons.

4.3.3 DUPLICATE SAMPLES, EQUIPMENT BLANKS, AND TRIP BLANKS

Duplicate samples, equipment blanks, and trip blanks obtained will be analyzed during the Phase II investigation for VOCs (U.S. EPA Method No. 8021) to assess the quality of data resulting from the field sampling program.

Field duplicate soil and ground water samples will be collected and analyzed to check for sampling and analytical reproducibility.

Field equipment blanks will be collected to check for procedural contamination which may cause sample contamination. The general level of QC effort will be one equipment blank for every ten soil samples. The method of collection includes rinsing the split-spoon sampler with laboratory-grade deionized water and collecting the water in a 40 mL Teflon-lined vial with no headspace.

Field trip blanks will be used to assess the potential for contamination of samples due to contamination migration during sample shipment and storage. Soil and ground water samples will be shipped in separate coolers. One trip blank consisting of laboratory-grade deionized water will be poured into 40 mL Teflon-lined vials with no headspace at the laboratory and included along with each cooler of samples. The trip blank will remain in the cooler during shipment from the laboratory to the Site, while it is stored at the Site (if necessary), and during shipment back to the laboratory. The trip blank will only be removed from the cooler for labeling.

4.3.4 SAMPLE SHIPMENT

The sample shipment procedures summarized below will insure that the samples were collected properly and have arrived at the laboratory with the chain-of-custody intact. Examples of chain-of-custody forms, and other field and sampling activity forms are located in Appendix D.

Preservation techniques will be used to retard the chemical and biological changes that may take place after a sample is taken from its parent source. Samples collected in this sampling program will be placed in coolers and cooled with ice immediately upon collection and then transported to the WWES' Environmental Laboratory where they will be stored at 4°C until analysis. Table 1 lists sample preservation, holding time, and volume requirements for each type of sample collected during this phase of work.

The sample labeling and shipping procedures listed below will be implemented during the Phase II investigation.

- The field technician will be responsible for the care and custody of the samples until they are transferred or properly dispatched. As few people as possible will handle the samples.

- All bottles will be tagged with sample numbers and locations. An example of a sample tag is located in Appendix D.

- Sample tags will be completed for each sample using waterproof ink unless prohibited by weather conditions.

- A sample cooler(s) will be dedicated to the transport of each type of sample matrix.

- Samples will be properly packaged for shipment and dispatched to the WWES' Environmental Laboratory for analysis, with a separate signed chain-of-custody record enclosed in each sample box or cooler identifying the contents. The original chain-of-custody record will accompany the shipment, and a copy will be retained by the sampler and returned to the WWES project manager.

- When transferring the possession of the samples, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody record. This record documents transfer of custody of samples from the sampler to another person, to the analytical laboratory, or to/from a secure storage area. The chain-of-custody procedures for the WWES Environmental Laboratory are described in their Quality Assurance/Quality Control Procedures Manual (Appendix E).

- If the samples are sent by common carrier, a bill of lading shall be used. Receipts of bills of lading will be retained as part of the permanent documentation. If sent by mail, the package will be registered with return receipt requested. Commercial carriers are not required to sign off on the custody form as long as the custody forms are sealed inside the sample cooler.

4.3.5 LABORATORY QA/QC

All soil and ground water samples collected during field sampling activities at the Site will be analyzed by WWES' Environmental Laboratory in Grand Rapids, Michigan. The QA/QC Procedures Manual for the laboratory is presented in Appendix E.

Standard operating procedures for laboratory analyses are based on an analytical methods published by the U.S. EPA. For this project, U.S. EPA Method 8021 will be used. The standard operating procedure for this method, presented in Appendix F, specifies:

- procedures for sample preparation;
- instrument start up and performance check;
- initial and continuing calibration check requirements;
- specific methods for each sample matrix type; and
- required analysis procedures.

Calibration of laboratory equipment will be based on approved written procedures (see Appendix E). Records of calibration, repairs, or replacement will be filed and maintained by the designated laboratory analyst. These records will be filed at the location where the work is performed and will be subject to QA audit.

4.4 REPORT

Upon completion of the drilling and sampling program, a report will be prepared by WWES summarizing the results of the soil gas survey and drilling and sampling programs, if no further investigatory work is warranted. The data will be presented in tabular and graphic format. Isochemical contour maps and cross sections will be prepared, if appropriate. The lateral and vertical extent of VOCs in the soil, if present, will be delineated. Identification of potential source areas will be made, if possible. Based on the results of the Phase I and II investigations, recommendations will be made regarding any appropriate remedial action.

A technical memorandum will be prepared in lieu of the report if ground water is determined to be impacted and additional characterization of the plume is needed. The technical memorandum will include a proposed scope of work for the third phase of field investigation.

The report or technical memorandum will be submitted to the U.S. EPA for their review and comment.

HEALTH AND SAFETY PLAN
in support of the
PHASE I SOIL GAS SURVEY PROGRAM
and
PHASE II DRILLING AND SAMPLING PROGRAM

at
THE SELMER COMPANY
500 INDUSTRIAL PARKWAY
ELKHART, INDIANA

for

NORTH AMERICAN PHILLIPS CORPORATION
THE SELMER COMPANY
and
MACMILLAN, INC.

prepared by

WW ENGINEERING & SCIENCE
5555 GLENWOOD HILLS PARKWAY SE
GRAND RAPIDS, MI 49588-0874

OCTOBER 1992

PROJECT NO. 22334

1.0 INTRODUCTION

This document describes the health and safety guidelines and procedures developed for the field activities associated with the Phase I Soil Gas Survey Program and the Phase II Drilling and Sampling Program for the Selmer Company facility, hereinafter referred to as the "facility". The facility is located in Elkhart, Indiana. The guidelines and procedures contained herein are based on the best available information at the time of this plan's preparation. Specific requirements will be revised when and if new information is received or conditions change significantly from original indications. Written amendments will document all changes made to this plan and all such amendments will be included in Attachment A. Where appropriate, specific Occupational Safety and Health Administration (OSHA) standards or other authoritative guidance will be cited and applied. All work will be coordinated through the Project Manager and will be performed in accordance with the provisions, guidelines, and procedures of this Facility Health and Safety Plan (SH&SP) and the requirements of OSHA's Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 29 CFR 1910.120. FAILURE TO COMPLY WITH THESE REQUIREMENTS MAY RESULT IN DISMISSAL FROM THE FACILITY.

1.1 FACILITY DESCRIPTION AND HISTORY

The facility consists of approximately 18.5 acres of lightly wooded land located in the west half of the southeast quarter of Section 3 of T37N, R5E of the Elkhart Quadrangle (see Figure 1). The main manufacturing building and associated storage buildings are located in the northern portion of the facility as shown in Figure 2. An office building with a parking lot is located at the south end of the facility. An asphalt parking area also exists along the western edge of the facility. There are no known underground storage tanks on the plant property. Topographic depressions located east of the manufacturing building and west of the office building periodically appear swampy due to surface water drainage.

The plant has been used exclusively since 1965 for the manufacture of brass musical instruments. The manufacturing process includes the use of trichloroethylene (TCE) as a degreaser. Vapor phase degreasers (VPD's) connected to a solvent recovery still have been used at the facility. Laboratory analyses of ground water samples from the eastern Elkhart area indicate the presence of volatile organic compounds (VOC's) including TCE, TCA, and methylene chloride, with TCE being the principal VOC detected in the area. The source, or sources, of the detected VOC's has not been identified to date.

1.2 SCOPE OF WORK

The field investigation activities at the facility will consist of the following major tasks, which are described in greater detail in the Field Investigation Work Plan:

Phase I. Soil Gas Survey Program
- Task 1 - Survey the property and establish the soil gas grid.
- Task 2 - Activate, install, and remove PETREX soil gas samplers.

Phase II. Drilling and Sampling Program
- Task 1 - Drill soil borings.
- Task 2 - Collect split-spoon samples.

1.3 KEY PERSONNEL AND ROLES/RESPONSIBILITIES

Contractor	**WW Engineering & Science (WWES)** **5555 Glenwood Hills Parkway SE** **Grand Rapids, MI 49588-0874** **(616) 942-9600**
WWES Project Manager	Scott Dennis, Ext. 233
WWES Project Geologist	Lauryl Lefebvre, Ext. 446
WWES Field Services Manager	Mike Potter, Ext. 336
WWES Survey Manager	Randy Kolehouse, Ext. 212
WWES Health & Safety Officer	Bert Webb, Ext. 405
WWES Corporate Safety Director	Ted Cline, Ext. 294 [redacted]
Facility Contact	Bert Kurtz [redacted]

WWES' Project Manager is responsible for coordinating field activities including, but not necessarily limited to, contractor oversight, sample collection and transport, and associated activity documentation. The Project Manager will report directly to the client contact and will act as liaison for the client with the U.S. EPA. The Project Manager will endeavor to ensure that all field activities are conducted in accordance with the Work Plan and this SH&SP.

WWES' Health & Safety Officer (SH&SO) has the authority and responsibility to implement this SH&SP. The SH&SO will enforce and verify compliance with the requirements of this SH&SP, and has the authority to immediately halt on-facility field activities due to unsafe conditions and/or behavior not in compliance with this SH&SP.

The SH&SO, or designated alternate will maintain logs of all on-site project personnel, general weather data, and air monitoring data, and will complete incident investigation reports as necessary for each day of field activities. The SH&SO will also conduct facility safety meetings and determine appropriate upgrades or downgrades in Levels of Protection in accordance with the requirements of this SH&SP. The SH&SO, or designated alternate, will be responsible for informing all personnel involved in on-site project related activities of the contents of this SH&SP and ensuring that each person signs the Health & Safety Plan Acknowledgment Form in Attachment Z. By so signing, individuals are recognizing the potential hazards on-site and the procedures required to control the hazards and minimize their potential adverse effects.

Monitoring Well Sampling With A Bailer

MONITORING WELL SAMPLING WITH A BAILER

The objective in well sampling is to obtain a representative sample of the ground water from the formation where the well screen has been placed.

JOB DESCRIPTION:

Obtain ground water samples from the specified wells.

TASK-SPECIFIC EQUIPMENT AND MINIMUM INFORMATION NEEDED:

- detailed well location map
- order of the well sampling (supplied by the project manager)
- polypropylene rope
- bailers
- container for purge water (if required)
- well keys
- total well depth data
- water level tape (electric or steel)
- well pumps if necessary
- previous water level data
- disposable gloves
- sample bottles
- calculator
- $V = Hr^2 (0.163)$[a]

[a]Refer to guideline for calculating the volume of standing water in a well casing.

EXPECTATIONS:

All water levels will be taken prior to sampling.

All purge volume data will be recorded.

Sound decontamination procedures will be followed.

Noticeable discoloration or odor in the water will be reported.

Each sample requested will be collected.

PROCEDURES:

1. All the wells of a cluster to be sampled are uncapped. Care must be taken not to mix the caps up. The caps should be placed near the well on a clean area, such as a small piece of plastic. Inspect the condition of the well(s).

2. Take a round of water levels. Electric tapes decrease the potential for cross-contamination.

3. Calculate and record the volume of water in the casing. Record the needed purge volume (three times the volume of water in the casing).

4. Purge the well with a clean or dedicated bailer and a new length of polypropylene rope. Concentrate the purging effort at the air/water interface.

5. Record the amount of water actually purged and what was done with the purge water. Record the method of purging, and the type of bailer used (Teflon or stainless steel).

6. Collect the ground water sample with the bailer.

7. Fill the sample container accordingly.

8. Seal the container.

9. If the container is a VOC vial, turn the full container upside down and tap it lightly. Watch for air bubbles. If air is present in the bottle, add more water and recap, again checking for the presence of air bubbles.

10. Label the sample bottle(s) and place in a cooler with ice for transport to the laboratory.

11. Steam clean the bailer before using again.

12. Dispose of the used rope.

In wells which do not readily recover, it may be unreasonable to purge three well casing volumes prior to sampling. In these cases, a field judgment must be made as to what is a "reasonable" amount of time to spend in securing the sample. In a well that can be bailed dry, it is acceptable to purge one casing volume, wait for the well to recover, and take a sample. Keep good records of the volume of water actually purged and estimate the recovery time for the well. The purpose of purging is to remove all the static water from the well. In a well which is bailed dry, that objective is obtained after one well casing volume is removed.

Temporary Wells Through Hollow-Stem Augers

TEMPORARY WELLS THROUGH HOLLOW-STEM AUGERS

Temporary wells are used to obtain a representative ground water sample from a discreet depth when permanent well construction is not desired.

PROCEDURE:

1. Advance the augers to the depth for the bottom of the well screen.

2. Remove the drill plug.

3. Lower the steam-cleaned well assembly to the bottom of the borehole.

4. If necessary, sand pack the well screen with clean, coarse sand grade silica sand to 1 foot above the top of the screen. Retract the augers while adding the sandpack.

5. Develop the well until sediment-free water is produced or at least three casing volumes are removed.

6. Sample the well with a clean bailer.

7. Pull the well out of the borehole.

8. Follow standard procedures for grouting the borehole.

Well Casing Volume Calculation

WELL CASING VOLUME CALCULATION

Minimum information and equipment necessary to perform the task:

- well location map
- total depths of the wells
- water level tape
- calculator

Well casing volumes are important to determine the volume of water which must be purged from a well prior to collecting a groundwater sample which is representative of the screened aquifer. Obtaining this value is a two-step calculation:

V = "Pi" r^2H (7.48) is the equation for the volume of a cylinder and is used to make the volume calculation:

ONE:

where:

V =	volume of water in the casing (cubic feet)
"Pi" =	3.14
r =	radius of well (***feet***)
H =	height of the water column in the well (feet)
7.48 =	converts volume (V) from cubic feet to gallons

It is necessary to evacuate at least three volumes of water before sampling; therefore:

TWO: Vx3 = volume of water to be purged prior to sampling

A simplified form of the equation for the volume of the cylinder is:

$$V = r^2H\ (0.163)$$

where:

V =	volume of water in the casing (gallons)
r =	the inside radius of the well casing (***inches***)
H =	the height of the water column in the well (feet)
	$H = H_o - H_1$
	H_o = total length of the well measured from TOC
	H_1 = the water level measured from TOC
0.163 =	a constant

Carefully avoid the possibility of cross-contamination between wells by rinsing water level tape off between wells.

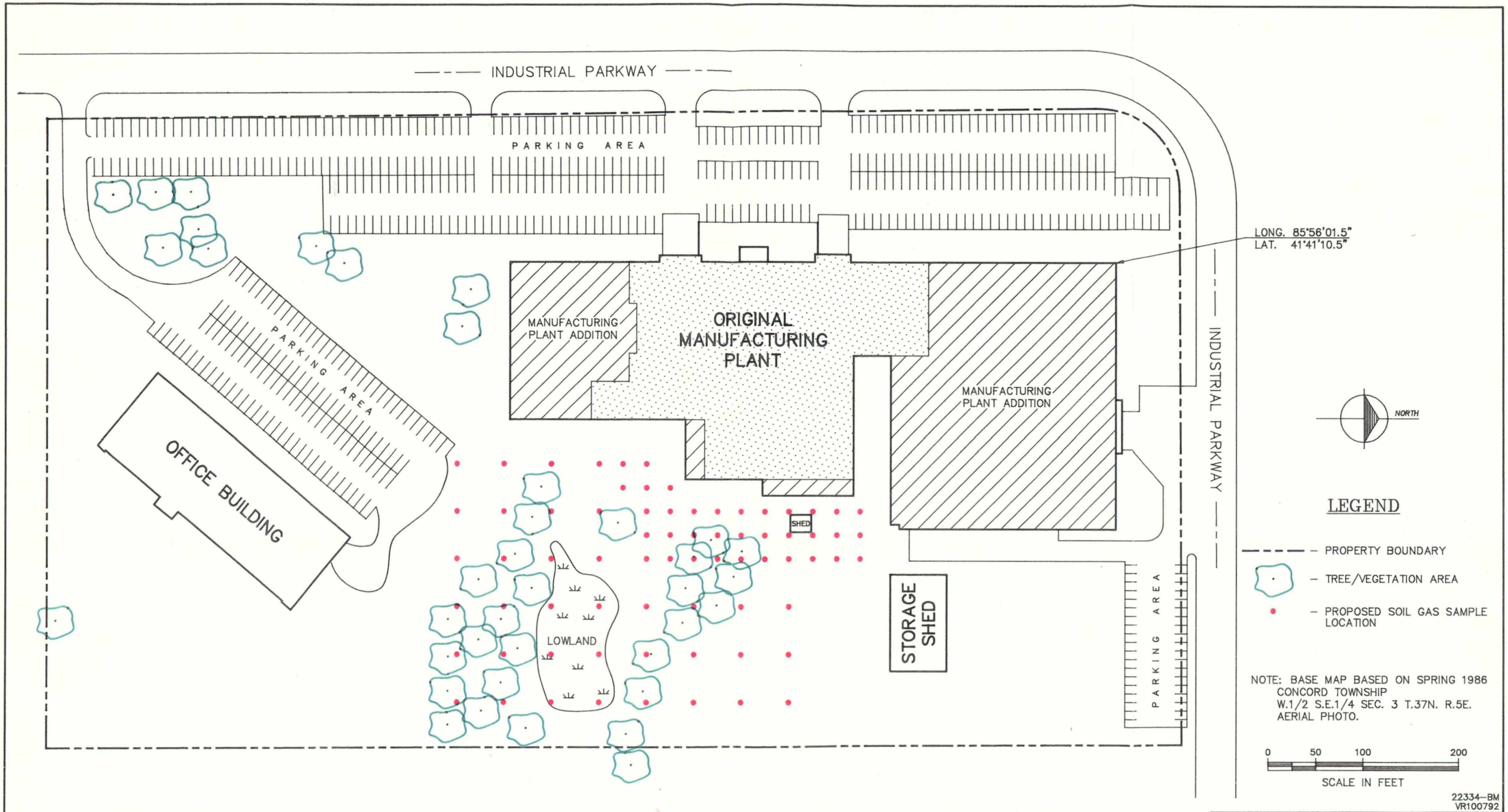


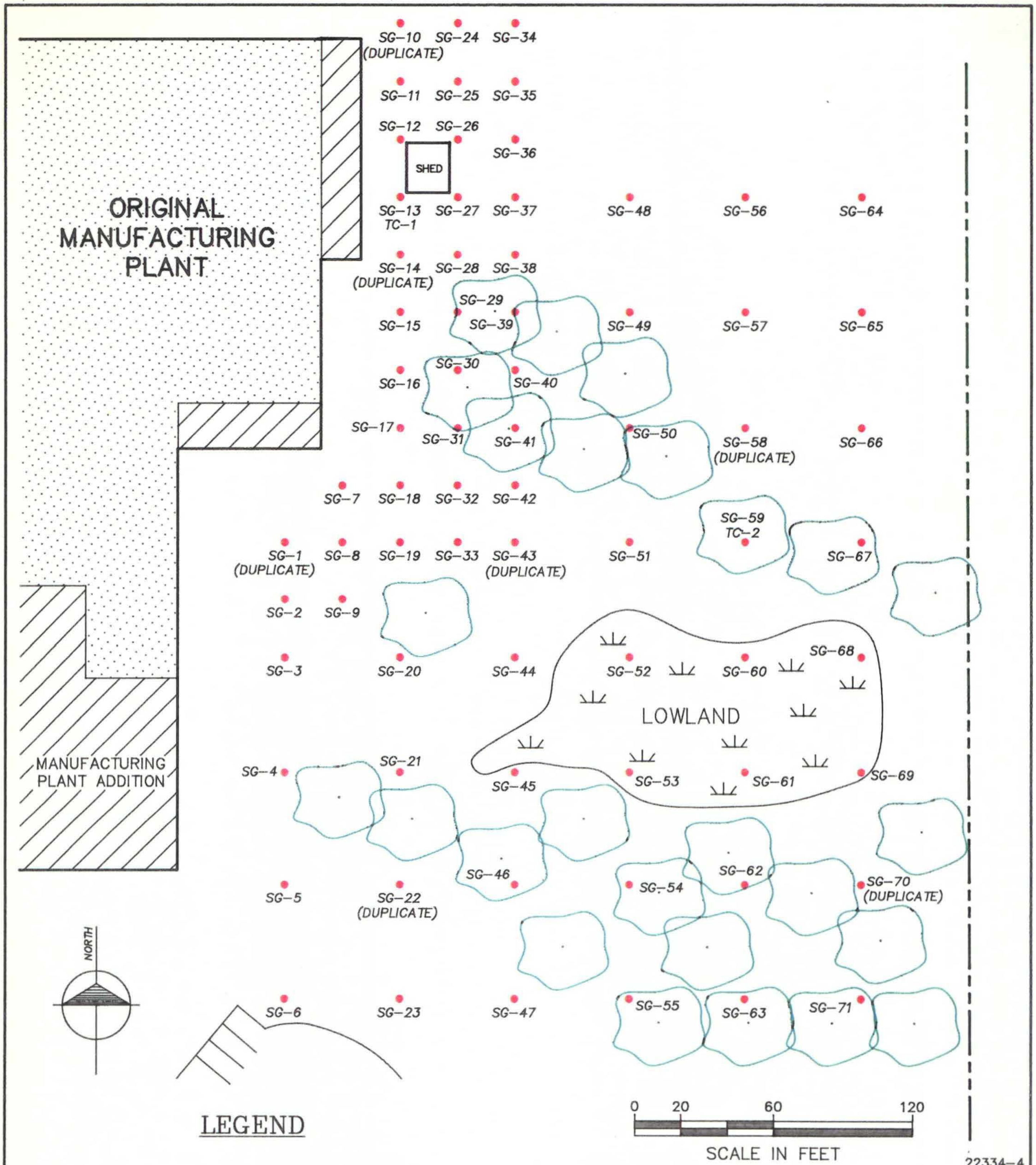
FIGURE 3

SELMER COMPANY MAP

500 INDUSTRIAL PARKWAY
ELKHART, INDIANA

OCTOBER, 1992 22334

WW Engineering & Science, Inc.



LEGEND

- — PROPERTY BOUNDARY
- — TREE/VEGETATION AREA
- — PROPOSED SOIL GAS SAMPLE LOCATION

WW Engineering & Science, Inc.

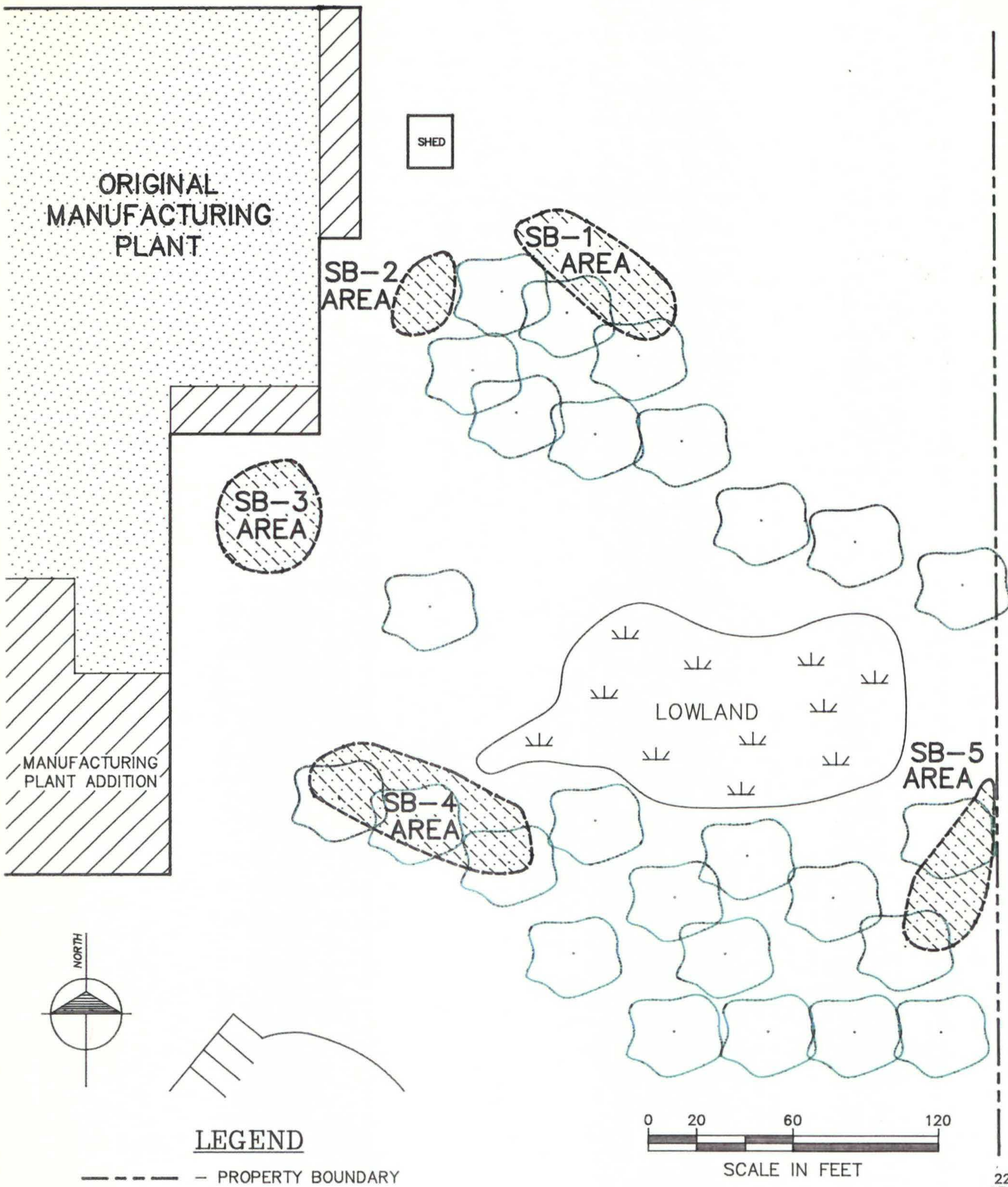
FIGURE 4

PROPOSED SOIL GAS SAMPLE LOCATIONS

500 INDUSTRIAL PARKWAY
ELKHART, INDIANA

OCTOBER, 1992

22334



LEGEND

- PROPERTY BOUNDARY
- TREE/VEGETATION AREA
- PROPOSED SOIL BORING AREA

FIGURE 5

PROPOSED SOIL BORING LOCATIONS

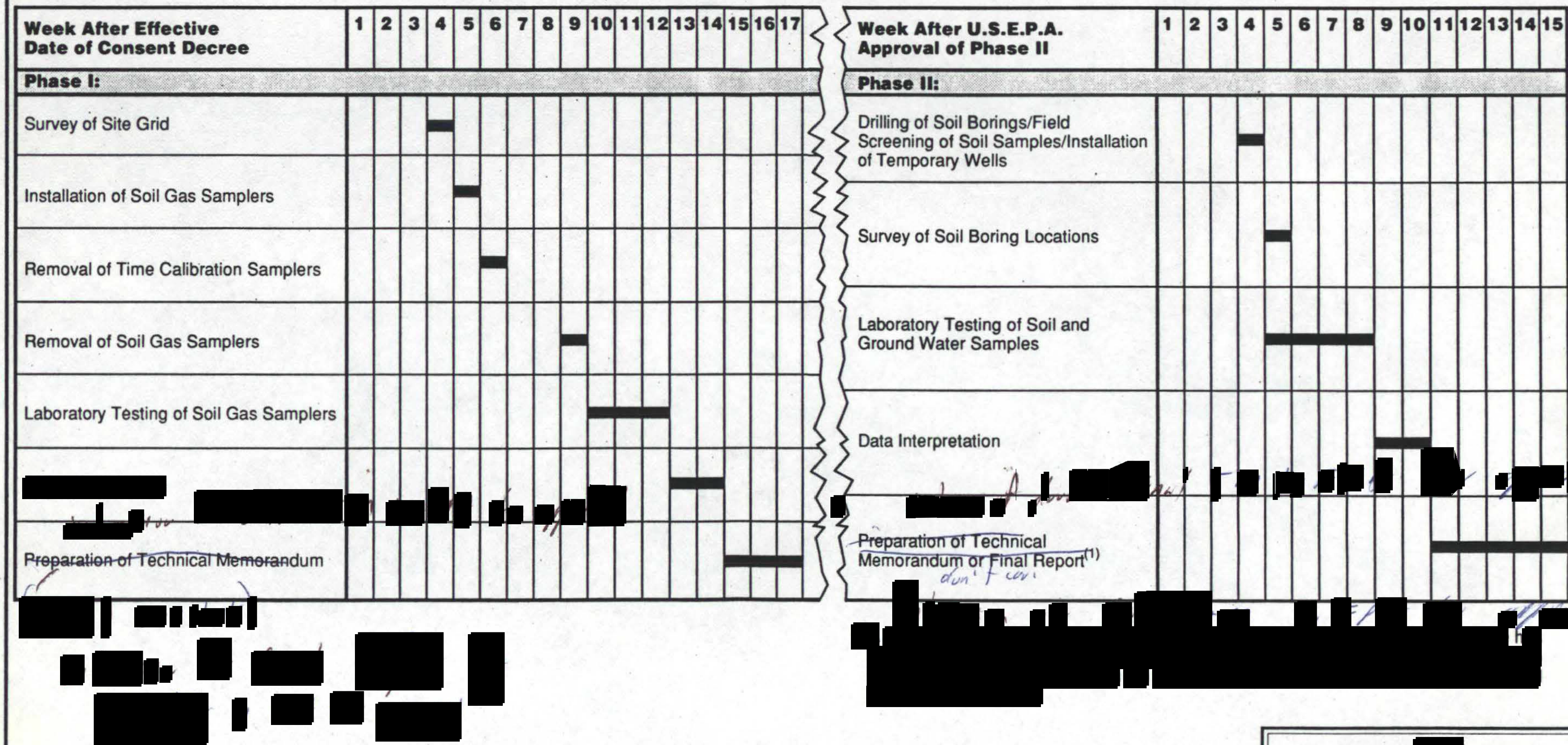
500 INDUSTRIAL PARKWAY
ELKHART, INDIANA

OCTOBER, 1992

22334

WW Engineering & Science, Inc.

22334/Macmillan&NAPC/1092



[redacted]
[redacted] Industrial Pkwy
Elkhart, Indiana

October 1992 22334

WW Engineering & Science

INTERNATIONAL TECHNOLOGY CORPORATION

IT ENVIRONMENTAL PROGRAMS, INC.

EMERGENCY RESPONSE
CLEANUP SERVICES (ERCS)
CONTRACT DIVISION
11499 Chester Road
Cincinnati, OH 45246

FAX # (513) 782-4663

Transmission Confirmation # (800) 372-3727
(513) 782-4672

Faxed to
I T
1-19-93

Date: 1/19/92

Time: 11:25

Number of pages (with cover): 7

Operator initials: F.D.K.

TO: KEN THEISEN
US/EPA
(217) 753-2597

FROM: FRANK D. KELLY
I.T. CORPORATION
CINCINNATI, OHIO

Special Instructions/Comments: Final Product. I can FAX you the 20pp. of backup or I can mail it in its entirety to your office. Let me know.

Thanks!
Frank

– How was the hot tub?

HAZARDOUS SUBSTANCE RESPONSE FUND CONTRACTOR COST REPORT PAGE 1

US ENVIRONMENTAL PROTECTION AGENCY SITE NAME: SOUTHEAST ROCKFORD	CONTRACTOR: PEI ASSOCIATES, INC.	CONTRACT # 68-01-7460
CONTRACTOR PERSONNEL REPORT EPA STANDARD FORM 1900-55	DELIVERY ORDER # 7460-05-192	DATE 07/01/92

1. EMPLOYEES ASSIGNED	2. WORK CLASSIFICATION	3. HOURLY LABOR RATES REG	3. HOURLY LABOR RATES OT	4. TOTAL HOURS REG	4. TOTAL HOURS OT	5. TRAVEL, LODGE, & PER DIEM	6. TOTAL PERSONNL COST
ERCS CONTRACTOR 1018: IT CORPORATION							
FRANK KELLY	013:FLD CLERK/TYPIST	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
KNOWLES, C.	013:FLD CLERK/TYPIST	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
MOCK, R.	013:FLD CLERK/TYPIST	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
POSTMA, D.	022:ENGINEER CIVIL	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
DORAN, D.	802:SR.FIELD OWW.ENG.	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
MENTZ, C.	804:SR. DRAFTSMAN	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
							[redacted]

ERCS CONTRACTOR 1018: ADJUSTMENTS/COMMENTS

(1) TIME FOR CHERYL KNOWLES IS FOR PURCHASING FUNCTIONS FOR [redacted] ON 6/24/92.
(2) TIME FOR ROXANE MOCK IS FOR WORD PROCESSING FUNCTIONS FOR [redacted] ON 6/19/92.
(3) TIME FOR DEAN POSTMA IS FOR ENGINEERING FUNCTIONS FOR [redacted] ON 6/24/92.
(4) TIME FOR MIKE DORAN IS FOR SITE WORK AS FOLLOWS: [redacted]
(5) TIME FOR FRANK KELLY IS FOR THE RESEARCH AND PREPARATION OF THIS FORM 1900-55. 1/14/93.

7. TOTAL PERSONNEL COST TO DATE:	8. TOTAL PERSONNEL COST FOR TODAY:
$ [redacted]	$ [redacted]

HAZARDOUS SUBSTANCE RESPONSE FUND CONTRACTOR COST REPORT PAGE 2

US ENVIRONMENTAL PROTECTION AGENCY	CONTRACTOR:	CONTRACT #
SITE NAME: SOUTHEAST ROCKFORD	PEI ASSOCIATES, INC.	68-01-7460

SUBCONTRACTOR FINAL BILL REPORT	DELIVERY ORDER #	DATE
EPA STANDARD FORM 1900-55	7460-05-192	07/01/92

34. SUBCONTRACTOR	35. INVOICE #	36. SUB CODE	37. SERVICE	38. TYPE	39. SERVICE DATE	40. COST
ERCS CONTRACTOR 1615: IT CORPORATION						
MILEAGE		0001	ZERO AWAITS	5	09/15/91	[redacted]
G and A Charge						
FEDERAL EXPRESS	32055535	0007	[redacted]	5	06/25/91	
G and A Charge						
FEDERAL EXPRESS	81365173	0007		5	08/07/91	
G and A Charge						
FEDERAL EXPRESS	81352455	0007		5	08/14/91	
G and A Charge						
FEDERAL EXPRESS	81352061	0007		5	08/21/91	
G and A Charge						
FEDERAL EXPRESS	81352072	0007		5	08/28/91	
G and A Charge						
FEDERAL EXPRESS	81352094	0007		5	09/11/91	
G and A Charge						
FEDERAL EXPRESS	81352105	0007		5	06/19/92	
G and A Charge						
FEDERAL EXPRESS	81352116	0007		5	06/19/92	
G and A Charge						
FEDERAL EXPRESS	81352120	0007		5	06/19/92	
G and A Charge						
FEDERAL EXPRESS	03191180	0007		5	06/23/92	
G and A Charge						
FEDERAL EXPRESS	00376770	0007		5	06/24/92	
G and A Charge						
FEDERAL EXPRESS	33513665	0007		5	07/24/92	
G and A Charge						
FEDERAL EXPRESS	25754359	0007		5	07/24/92	
G and A Charge						
ILLINOIS BELL	F6298507	TLLT		U	02/27/92	
G and A Charge						
KEN'S REPRODUCTION	A98921	KENS		5	11/21/91	
G and A Charge						

HAZARDOUS SUBSTANCE RESPONSE FUND CONTRACTOR COST REPORT PAGE 3

US ENVIRONMENTAL PROTECTION AGENCY	CONTRACTOR:	CONTRACT #
SITE NAME: SOUTHEAST ROCKFORD	PEI ASSOCIATES, INC.	68-01-7460
SUBCONTRACTOR FINAL BILL REPORT	DELIVERY ORDER #	DATE
EPA STANDARD FORM 1900-55	7460-05-192	07/01/92

34. SUBCONTRACTOR	35. INVOICE #	36. SUB CODE	37. SERVICE	38. TYPE	39. SERVICE DATE	40. COST
KOH'S REPRODUCTION U and A Charge	A90593	KOHS	[redacted]	$	11/14/91	[redacted]
PYRAMID MERCANTILE G and A Charge	2150	PYRA		$	07/08/92	

SUBCONTRACTOR SERVICE CODES:

U - UTILITIES
$ - OTHER

41. TOTAL SUBCONTRACTOR COST TO DATE: $ [redacted]

42. TOTAL SUBCONTRACTOR COST FOR TODAY: $ [redacted]

HAZARDOUS SUBSTANCE RESPONSE FUND CONTRACTOR COST REPORT PAGE 4

US ENVIRONMENTAL PROTECTION AGENCY	CONTRACTOR:	CONTRACT #
SITE NAME: SOUTHEAST ROCKFORD	PEI ASSOCIATES, INC.	68 01 7460

COMMENTS AND ADJUSTMENTS	DELIVERY ORDER #	DATE
EPA STANDARD FORM 1900-55	7460 05 192	07/01/92

53. ADJUSTMENT/COMMENT	54. ADJ TYPE	55. PLUS OR MINUS	56. AMOUNT
ERCS CONTRACTOR 1018: IT CORPORATION			
(1) TIME FOR CHERYL KNOWLES IS FOR PURCHASING FUNCTIONS FOR [redacted] 6/24/92.	PERS		
(2) TIME FOR ROXANE MOCK IS FOR WORD PROCESSING FUNCTIONS FOR [redacted] 6/19/92.	PERS		
(3) TIME FOR DEAN POSTMA IS FOR ENGINEERING FUNCTIONS FOR [redacted] ON 6/24/92.	PERS		
(4) TIME FOR MIKE DORAN IS FOR SITE WORK AS FOLLOWS: [redacted]. [redacted]	PERS		
(5) TIME FOR CHARLES BENTZ IS FOR DRAFTSMAN WORK FOR 1 HOUR ON 6/23/92.	PERS		
(6) TIME FOR FRANK KELLY IS FOR THE RESEARCH AND PREPARATION OF THIS FORM 1900-55. 1/14/93.	PERS		

[redacted]

58.
TOTAL NET ADJUSTMENTS FOR TODAY:
$ 0.00

TOTAL ERCS COSTS TO DATE:
$ [redacted]

TOTAL DAILY ERCS COSTS:
$ [redacted]

Kenneth M Theisen	1-20-93	[signature]	1/19/93
SIGNATURE OF OSC REPRESENTATIVE	DATE	SIGNATURE OF CONTRACTOR'S AUTHORIZED REPRESENTATIVE	DATE

DAILY COST SUMMARY FOR 07/01/92
SOUTHEAST ROCKFORD

	Ceilings (As of 06/27/92)	Balances (As of 06/27/92)
Site Total ERCS: PEI ASSOCIATES, INC. TAT:	[redacted]	[redacted]

Cost Categories	Today	Total to Date	Balance (% Remaining)
1900-55 Costs:			
PEI ASSOCIATES, INC.	[redacted]	[redacted]	
Personnel			
Equipment			
Unit Rate Materials			
At Cost Materials			
Subcontractors (Final Bills)			
Adjustments			
Total PEI ASSOCIATES, INC. Cost (Includes Adjustments) (Less Await Bills)	[redacted]	[redacted]	
Change in Subcontractor Await Bill Total	[redacted]		
Subcontractor Await Bill Total		[redacted]	
Total PEI ASSOCIATES, INC. Cost	[redacted]	[redacted]	
PEI ASSOCIATES, INC. Ceiling Balance % PEI ASSOCIATES, INC. Funds Remaining			[redacted]
TAT Costs:			
TAT Remaining Balance % TAT Funds Remaining			[redacted]
EPA Costs:			
Project Total Costs:	[redacted]	[redacted]	
Project Balance Remaining % Project Funds Remaining			[redacted]

TOTAL P.07

SOUTHEAST ROCKFORD

EPA Costs

TAT Costs For